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Fig. 1

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Fig. 2

```
                    ┌──────────────┐
                   (    START     )
                    └──────┬───────┘
                           │◄──────────────────────────┐
                           ▼                            │
              ┌─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─┐                   │
              │ REMOVE STALE TASKS  │                   │
              │        280          │                   │
              └─ ─ ─ ─ ─ ┬ ─ ─ ─ ─ ─┘                   │
                         ▼                               │
              ┌────────────────────┐                    │
              │ IF POSSIBLE, SELECT│                    │
              │INCOMPLETE TASK FROM│                    │
              │      TASK SET      │                    │
              │        210         │                    │
              └─────────┬──────────┘                    │
                        ▼                               │
              ┌────────────────────┐                    │
              │  RESET EXECUTION   │                    │
              │       TIMER        │                    │
              │        220         │                    │
              └─────────┬──────────┘                    │
                        ▼                               │
              ┌────────────────────┐                    │
              │ ADVANCE EXECUTION OF│                   │
              │   SELECTED TASK    │                    │
              │        230         │                    │
              │ (RESTORE STATE OF  │                    │
              │SELECTED TASK BEFORE│                    │
              │     RESUMING)      │                    │
              └─────────┬──────────┘                    │
```

IF POSSIBLE, SELECT INCOMPLETE TASK FROM TASK SET 210

RESET EXECUTION TIMER 220

ADVANCE EXECUTION OF SELECTED TASK 230 (RESTORE STATE OF SELECTED TASK BEFORE RESUMING)

NO ◄── SELECTED TASK COMPLETED? 240 ──► YES

NO ◄── EXECUTION TIMER EXPIRED? 260 ──► YES

REMOVE SELECTED TASK FROM TASK SET 250

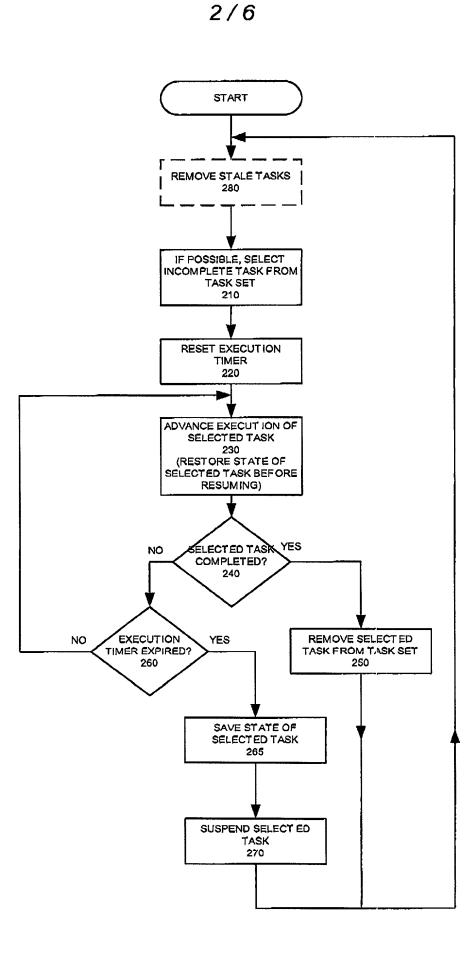SAVE STATE OF SELECTED TASK 265

SUSPEND SELECTED TASK 270

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Fig. 3A: Evolution of task list 140 and activity of task scheduler 130 and task processor 150

TIME (ms)	Task scheduler activity	Task processor activity (all execution intervals = 5 ms)	State of task set immediately after TIME
0	T1 (duration 3) added to task set	T1 selected (210) Execution timer reset (220) T1 begun (230)	T1 (0/3)
1	--	T1 ongoing (230)	T1 (1/3)
2	T2 (duration 16) added to task set	T1 ongoing (230)	T1 (2/3); T2 (0/16)
3	--	T1 completed and removed from task set (250) T2 selected (210) Execution timer reset (220) T2 begun (230)	T2 (0/16)
4	--	T2 ongoing (230)	T2 (1/16)
5	--	T2 ongoing (230)	T2 (2/16)
6	--	T2 ongoing (230)	T2 (3/16)
7	--	T2 ongoing (230)	T2 (4/16)
8	--	T2 context saved (265) T2 suspended (270) T2 selected (210) Execution timer reset (220) T2 resumed upon restoring T2 context (230)	T2 (5/16)
9	--	T2 ongoing (230)	T2 (6/16)
10	T3 (duration 13) added to task set	T2 ongoing (230)	T2 (7/16); T3 (0/13)
11	T4 (duration 4) added to task set	T2 ongoing (230)	T2 (8/16); T3 (0/13); T4 (0/4)
12	--	T2 ongoing (230)	T2 (9/16); T3 (0/13); T4 (0/4)
13	--	T2 context saved (265) T2 suspended (270) T3 selected (210) Execution timer reset (220) T3 begun (230);	T2 (10/16); T3 (0/13); T4 (0/4)
14	--	T3 ongoing (230)	T2 (10/16); T3 (1/13); T4 (0/4)
15	--	T3 ongoing (230)	T2 (10/16); T3 (2/13); T4 (0/4)
16	--	T3 ongoing (230)	T2 (10/16); T3 (3/13); T4 (0/4)
17	--	T3 ongoing (230)	T2 (10/16); T3 (4/13); T4 (0/4)
18	--	T3 context saved (265) T3 suspended (270) T4 selected (210) Execution timer reset (220 T4 begun (230)	T2 (10/16); T3 (5/13); T4 (0/4)

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Fig. 3B: Evolution of task list 140 and activity of task scheduler 130 and task processor 150

TIME (ms)	Task scheduler activity	Task processor activity (all execution intervals = 5 ms)	State of task set immediately after TIME
19	--	T4 ongoing (230)	T2 (10/16); T3 (5/13); T4 (1/4)
20	--	T4 ongoing (230)	T2 (10/16); T3 (5/13); T4 (2/4)
21	--	T4 ongoing (230)	T2 (10/16); T3 (5/13); T4 (3/4)
22	--	T4 completed and removed from task set (250) T3 selected (210) Execution timer reset (220) T3 resumed upon restoring T3 (230)	T2 (10/16); T3 (5/13)
23	--	T3 ongoing (230)	T2 (10/16); T3 (6/13)
24	--	T3 ongoing (230)	T2 (10/16); T3 (7/13)
25	--	T3 ongoing (230)	T2 (10/16); T3 (8/13)
26	--	T3 ongoing (230)	T2 (10/16); T3 (9/13)
27	--	T3 context saved (265) T3 suspended (270) T2 selected (210) Execution timer reset (220) T2 resumed upon restoring T2 context (230)	T2 (10/16); T3 (10/13)
28	--	T2 ongoing (230)	T2 (11/16); T3 (10/13)
29	--	T2 ongoing (230)	T2 (12/16); T3 (10/13)
30	--	T2 ongoing (230)	T2 (13/16); T3 (10/13)
31	--	T2 ongoing (230)	T2 (14/16); T3 (10/13)
32	--	T2 context saved (265) T2 suspended (270) T3 selected (210) Execution timer reset (220) T3 resumed upon restoring T3 context (230)	T2 (15/16); T3 (10/13)
33	--	T3 ongoing (230)	T2 (15/16); T3 (11/13)
34	--	T2 ongoing (230)	T2 (15/16); T3 (12/13)
35	--	T3 completed and removed from task set (250) T2 selected (210) Execution timer reset (220) T2 resumed upon restoring T2 context (230)	T2 (15/16)
36	--	T2 completed and removed from task set (250) Selection not possible (210)	Empty

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Fig. 4A: Evolution of task list 140 and activity of task scheduler 130 and task processor 150

TIME (ms)	Task scheduler activity	Task processor activity (all execution intervals = 5 ms)	State of task set immediately after TIME
0	T1 (duration 3) added to task set	T1 selected (210) Execution timer reset (220) T1 begun (230)	T1 (0/3)
1	--	T1 ongoing (230)	T1 (1/3)
2	T2 (duration 11) added to task set	T1 ongoing (230)	T1 (2/3); T2 (0/11)
3	--	T1 completed and removed from task set (250) T2 selected (210) Execution timer reset (220) T2 begun (230)	T2 (0/11)
4	--	T2 ongoing (230)	T2 (1/11)
5	--	T2 ongoing (230)	T2 (2/11)
6	--	T2 ongoing (230)	T2 (3/11)
7	--	T2 ongoing (230)	T2 (4/11)
8	--	T2 context saved (265) T2 suspended (270) T2 selected (210) Execution timer reset (220) T2 resumed upon restoring T2 context (230)	T2 (5/11)
9	--	T2 ongoing (230)	T2 (6/11)
10	T3 (duration 13) added to task set	T2 ongoing (230)	T2 (7/11); T3 (0/13)
11	$T2_{new}$ (duration 11) added to task set	$T2_{old}$ ongoing (230)	$T2_{old}$ (8/11); T3 (0/13); $T2_{new}$ (0/11)
12	--	$T2_{old}$ ongoing (230)	$T2_{old}$ (9/11); T3 (0/13); $T2_{new}$ (0/11)
13	--	$T2_{old}$ context saved (265) $T2_{old}$ suspended (270) $T2_{old}$ removed (280) T3 selected (210) Execution timer reset (220) T3 begun upon restoring T3 context (230)	T2 (0/11); T3 (0/13)
14	--	T3 ongoing (230)	T2 (0/11); T3 (1/13)
15	--	T3 ongoing (230)	T2 (0/11); T3 (2/13)
16	--	T3 ongoing (230)	T2 (0/11); T3 (3/13)
17	--	T3 ongoing (230)	T2 (0/11); T3 (4/13)
18	--	T3 context saved (265) T3 suspended (270) T2 selected (210) Execution timer reset (220) T2 begun (230)	T2 (0/11); T3 (5/13)

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Fig. 4B: Evolution of task list 140 and activity of task scheduler 130 and task processor 150

TIME (ms)	Task scheduler activity	Task processor activity (all execution intervals = 5 ms)	State of task set immediately after TIME
19	--	T2 ongoing (230)	T2 (1/11); T3 (5/13)
20	--	T2 ongoing (230)	T2 (2/11); T3 (5/13)
21	--	T2 ongoing (230)	T2 (3/11); T3 (5/13)
22	--	T2 ongoing (230)	T2 (4/11); T3 (5/13)
23	--	T2 context saved (265) T2 suspended (270) T3 selected (210) Execution timer reset (220) T3 resumed upon restoring T3 context (230)	T2 (5/11); T3 (5/13)
24	--	T3 ongoing (230)	T2 (5/11); T3 (6/13)
25	--	T3 ongoing (230)	T2 (5/11); T3 (7/13)
26	--	T3 ongoing (230)	T2 (5/11); T3 (8/13)
27	--	T3 ongoing (230)	T2 (5/11); T3 (9/13)
28	--	T3 context saved (265) T3 suspended (270) T2 selected (210) Execution timer reset (220) T2 resumed upon restoring T2 context (230)	T2 (5/11); T3 (10/13)
29	--	T2 ongoing (230)	T2 (6/11); T3 (10/13)
30	--	T2 ongoing (230)	T2 (7/11); T3 (10/13)
31	--	T2 ongoing (230)	T2 (8/11); T3 (10/13)
32	--	T2 ongoing (230)	T2 (9/11); T3 (10/13)
33	--	T2 context saved (265) T2 suspended (270) T3 selected (210) Execution timer reset (220) T3 resumed upon restoring T3 context (230)	T2 (10/11); T3 (10/13)
34	--	T3 ongoing (230)	T2 (10/11); T3 (11/13)
35	--	T3 ongoing (230)	T2 (10/11); T3 (12/13)
36	--	T3 completed and removed from task set (250) T2 selected (210) Execution timer reset (220) T2 resumed upon restoring T2 context (230)	T2 (10/11)
37	--	T2 completed and removed from task set (250) Selection not possible (210)	Empty